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# UNITED STATES PATENT AND TRADEMARK OFFICE

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/864,825 | 05/24/2001 | Paul V. Werme | NC 83017 | 2372 |

23501     7590     03/01/2005

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| EXAMINER |
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| TANG, KENNETH |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2127 | |

DATE MAILED: 03/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

| | Application No. | Applicant(s) |
|---|---|---|
| **Office Action Summary** | 09/864,825 | WERME ET AL. |
| | Examiner | Art Unit | |
| | Kenneth Tang | 2127 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *05 October 2004*.

2a)☒ This action is **FINAL**.    2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-36* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All  b)☐ Some *  c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

## DETAILED ACTION

1.      This action is in response to the Amendment on 10/5/04.

2.      Claims 1-36 are presented for examination.


### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3.      Claims 8-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention:

a.      In claims 8, 16, and 26, "M" and "N" are indefinite because a definite range is

not specified.  The Examiner suggest amending the claims to reflect that the number of

hosts is from 1 to N, and the number of managed characteristic applications is from 1 to

M, for example.

b.      In claims 16, "coupling the N hosts to one another, and the M managed

characteristic application computer programs" (lines 7-8) is indefinite because it is not

made explicitly clear in the claim language whether the managed character applications

are coupled and connected to the hosts as well as the other managed character

applications or just to the hosts.

4.      Claims 16 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being

incomplete for omitting essential structural cooperative relationships of elements, such omission

amounting to a gap between the necessary structural connections.  See MPEP § 2172.01.  The

omitted structural cooperative relationships are: In claims 16 and 26, there lacks an essential

relationship between the "first function", the "second function", and the "third function". For the

third function to occur, it needs to interact with the first function to learn the state of health and

also interact with the second function to learn the QoS requirements. There is no relationship

established in the claim language for this. In addition, claim 26 also omits an essential

relationship element between the "first function group", the "second function group", and the

"third function group".


### Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.


5.      **Claims 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bhattal et al.**

**(hereinafter Bhattal) (US 20020064126) in view of Du et al. (hereinafter Du) (US 6,041,306).**


6.      As to claim 1, Bhattal teaches in a distributed environment comprised of hosts

instantiating copies of an application computer program, a resource management device within

one of the hosts of the distributed environment, the resource management device generating

signals which start up, shutdown or move a selected one of the copies responsive to first

information received by the resource management device regarding performance of one or more

copies of the application computer program and second information received by the resource

management device regarding performance of the hosts *([0014]-[0016])*. Bhattal fails to

explicitly teach the application being scalable. However, Du teaches a scalable computing

system being an advantageous feature *(col. 5, lines 16-34)*. It would have been obvious to one of

ordinary skill in the art at the time the invention was made to include the feature of scalable

applications to the existing system of Bhattal because of the advantages described above.


7.      **Claims 2, 4-8, and 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable**

**over Bhattal et al. (hereinafter Bhattal) (US 20020064126).**


8.      As to claim 2, Bhattal teaches on a host instantiating a managed characteristic computer

program, the managed characteristic application computer program being managed by at least

the host, a resource management device of the host, the resource management device generating

signals responsive to first information received by the resource management device regarding

performance of a plurality of application computer programs including the managed

characteristic application computer program and second information received by the resrouce

management device regarding performance of the host, the signals including:  a first signal that

starts up an additional copy of the managed characteristic application computer program on one

of the host and a second networked host, a second signal shuts down and restarts the managed

characteristic on the host, and a third signal that moves the managed characteristic to the second

host *([0014]-[0016])*. Bhattal teaches using applications and using instances of communication

channels but fails to explicitly teach the instantiating managed characteristic be of an application. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that there could be applications associated with channels. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of applications associated with the channels for instantiating because it will increase the functionality of the channels from the applications performing functions for them.

9.      As to claim 4, Bhattal teaches the resource management device wherein the managed characteristic application computer program comprises a fault tolerant application, where the degree of fault tolerance is selectable by a user *([0070] and [0080])*.

10.     As to claim 5, it is rejected for the same reasons as stated in the rejection of claim 2. In addition, Bhattal fails to explicitly teach wherein the managed characteristic application computer program comprises a selectable priority application. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of a selectable priority application because it would increase the functionality of the system if applications can be selected by order of importance.

11.     As to claim 6, Bhattal fails to explicitly teach the resource management device wherein the managed characteristic application computer program further responds to user-initiated control actions. However, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to include the feature of user-initiated control actions because more

control will be given to the user.

12.     As to claim 7, Bhattal teaches the resource management device wherein the resource

arrangement device generates signals instructing a program control device to modify the

configuration of the managed characteristic application computer program *([0038])*.

13.     As to claim 8, it is rejected for the same reason as stated in the rejection of claim 2.  In

addition, Bhattal teaches there is a control configuration for the signals for the management

device *([0008] and [0036])*.

14.     As to claims 10-11, they are rejected for the same reasons as stated in the rejection of

claims 4-5, respectively.

15.     As to claim 12, Bhattal teaches the resource management device wherein the resource

management device further generates signals responsive to third information received by the

resource management device regarding the performance of hardware operatively coupling the

networked hosts *(see Abstract)*.

16.     As to claims 13-14, they are rejected for the same reasons as stated in the rejection of

claims 5-6, respectively.

17.    As to claim 15, Bhattal teaches the resource management device where the action

requests are generated by an operator *([0002])*.

18.    **Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over**

**Bhattal et al. (hereinafter Bhattal) (US 20020064126) in view of Du et al. (hereinafter Du)**

**(US 6,041,306).**

19.    As to claim 3, Bhattal teaches in a distributed environment comprised of hosts

instantiating copies of a characteristic application computer program, a resource management

device generating signals which start up, shutdown or move a selected one of the copies

responsive to first information regarding performance of all copies of the application and second

information regarding performance of the hosts *([0014]-[0016])*. Bhattal fails to explicitly teach

the application program being scalable. However, Du teaches a scalable computing system

being an advantageous feature because of increasing capabilities *(col. 5, lines 16-34)*. It would

have been obvious to one of ordinary skill in the art at the time the invention was made to

include the feature of scalable applications to the existing system of Bhattal because of the

advantages described above.

20.    As to claim 9, it is rejected for the same reasons as stated in the rejection of claim 3.

21.    **Claims 16-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over**

**Bhattal et al. (hereinafter Bhattal) (US 20020064126) in view of Du et al. (hereinafter Du)**

**(US 6,041,306), and further in view of Dimitroff et al. (hereinafter Dimitroff) (US 6,742,020**

**B1).**

22.    As to claim 16, it is rejected for the same reasons as stated in the rejection of claim 8. In

addition, Bhattal fails to explicitly teach having states to represent the health of the hosts and that

the actions need to maintain Quality of Service (QoS) requirements, and that . However, Du

teaches using managers and state machines that contains states of every condition and determines

the state and health based on the conditions automatically *(col. 6, lines 65-67 through col. 7,*

*lines 1-15 and col. 12, lines 31-47 and col. 10, line 3).* It would have been obvious to one of

ordinary skill in the art at the time the invention was made to include the feature of using

managers and state machines that contains states of every condition and determines the state and

health based on the conditions because they increase the integrity of the system by being able to

know when a "unhealthy" state (or state that is considered below requirements) occurs. In

addition, Du teaches using QoS requirements for the applications *(col. 11, lines 16-18).* It would

have been obvious to one of ordinary skill in the art at the time the invention was made to

include the feature of QoS requirements for the applications in order to maintain or increase the

integrity of the system. In addition, Bhattal and Du fail to explicitly teach that the computer

programs are moved, shutdown and started in accordance with satisfaction of the QoS

requirements. However, Dimitroff teaches using (opening, closing, moving, etc.) application

programs in accordance to satisfaction of QoS requirements *(col. 4, lines 7-18).* It would have

been obvious to one of ordinary skill in the art at the time the invention was made to include the

feature of the computer programs are moved, shutdown and started in accordance with

satisfaction of the QoS requirements to the existing networking system with QoS requirements of

Bhattal in view of Du because ensuring that QOS requirements are met insofar as possible is

desirable *(col.1, lines 57-65)*.

23.     As to claim 17, Bhattal teaches the software wherein the first function receives system

specification information comprising selected ones of host configuration and capabilities,

application capabilities, survivability requirements, scalability characteristics, application startup

and shutdown dependencies, and application and path performance requirements *([0067])*.

24.     As to claim 18, Bhattal teaches the software wherein the first function receives program

control information comprising application status and detected application faults for each of the

M managed characteristic application computer programs, and detected failures regarding the N

hosts *([0070] and [0080])*.

25.     As to claim 19, Bhattal teaches wherein the first function receives application

performance data representing each of the M managed characteristic application computer

programs *(see Abstract)*.

26.     As to claim 20, Bhattal teaches wherein the first function receives application

performance data on one or more applications instantiated by the N hosts including performance

data representing each one of the M managed characteristic application computer programs *(see Abstract)*.

27.     As to claim 21, Bhattal teaches the software wherein the second function which determines the required allocation and reallocation actions need to maintain the Quality of Service (QoS) requirements established for the M managed characteristic application by responding to application and host failures by determining if and what recovery actions should be taken; determining if and where to place new copies of one of the M managed characteristic application computer programs or which of the M managed characteristic application computer programs should be shutdown when QoS Manager functions indicate that scale-up or scale-down actions are indicated based on measured application performance and application QoS specifications; determining where new applications should be placed when requested to do so by a program control device; and determining which and how many application computer programs should run based on application system priorities *([0070] and [0080])*.

28.     As to claim 22, Bhattal teaches the resource management device wherein the managed characteristic application computer programs comprises a scalable application *([0070] and [0080])*.

29.     As to claim 23, Bhattal teaches the resource management device wherein the managed characteristic application computer programs comprises a fault tolerant application computer programs, where the degree of fault tolerance is selectable by a user *([0070] and [0080])*.

30.     As to claim 24, Bhattal fails to explicitly teach wherein the managed characteristic

application computer programs comprises a selectable priority application computer programs.

However, it would have been obvious to one of ordinary skill in the art at the time the invention

was made to include the feature of a selectable priority application computer programs because it

would increase the functionality of the system if applications can be selected by order of

importance.

31.     As to claim 25, Bhattal teaches using applications and using instances of communication

channels but fails to explicitly teach the instantiating managed characteristic be of an application

computer programs.  However, it would have been obvious to one of ordinary skill in the art at

the time the invention was made that there could be application computer programs associated

with channels.  It would have been obvious to one of ordinary skill in the art at the time the

invention was made to include the feature of applications associated with the channels for

instantiating because it will increase the functionality of the channels from the applications

performing functions for them.

32.     As to claim 26, it is rejected for the same reasons as stated in the rejection of claim 16.  In

addition, Bhattal fails to explicitly teach monitoring the host and network resources and

reporting.  However, Du teaches monitoring the host and network resources and reporting *(col. 5,*

*lines 59-67 through col. 6, lines 1-10, col. 8, lines 3-10)*.  It would have been obvious to one of

ordinary skill in the art at the time the invention was made to include the feature of monitoring

the host and network resources and reporting because the system could then diagnose or track the

status or "health" which actions then can be taken to maintain or increase the integrity of the

system.

33.     As to claim 27, Bhattal teaches the software wherein the first function receives system

specification information comprising host configuration and capabilities *([0067])*.

34.     As to claim 28, it is rejected for the same reasons as stated in the rejection of claims 2 and

17.

35.     As to claim 29, Bhattal teaches the software wherein the first function receives system

specification information comprising path performance requirements regarding communication

between at least two of the N hosts *([0006])*.

36.     As to claim 30, it is rejected for the same reasons as stated in the rejection of claim 18.

37.     As to claim 31, Bhattal teaches the software wherein the first function receives historical

data regarding statuses, configuration, and loads of the N hosts and link statuses and loads

regarding the network *([0006])*.

38.     As to claims 32-34, they are rejected for the same reasons as stated in the rejection of

claims 19-21.

39.     As to claim 35, Bhattal teaches the software wherein the third function group makes

decisions by one of: based on requests from Program Control, determining where new

application computer programs should be started; based on indication of application failure from

the fourth function group, determining whether and where the failed application computer

programs should be restarted; based on indication of host failure from the fourth function group,

determining whether and where the failed application computer programs previously instantiated

by the failed one of the N hosts should be restarted; based on startup and shutdown dependency

resolution requests from the fourth function group, determine whether and where additional

applications should to be one of started and shut down prior to starting or shutting down another

application; determining whether and where new applications need to be started and/or determine

whether and which existing applications need to be shutdown *([0038])*.

Bhattal fails to explicitly teach wherein the managed characteristic application computer

programs comprise a selectable priority application.  However, it would have been obvious to

one of ordinary skill in the art at the time the invention was made to include the feature of a

selectable priority application computer programs because it would increase the functionality of

the system if applications can be selected by order of importance.


40.     As to claim 36, it is rejected for the same reasons as stated in the rejection of claim 35

above.  In addition, Bhattal fails to explicitly teach the application computer programs being

scalable.  However, Du teaches a scalable computing system being an advantageous feature *(col.*

*5, lines 16-34)*.  It would have been obvious to one of ordinary skill in the art at the time the

invention was made to include the feature of scalable applications to the existing system of

Bhattal because of the advantages described above.

### *Response to Arguments*

41.     Applicant's arguments have been fully considered but are moot in view of the new

grounds of rejections.

*42.     Applicant argues (pages 21 and 23) that Bhattal does not teach startup, shutdown or
moving of an application computer program but instead of a channel.*

In response, the examiner respectfully disagrees.  Bhuttal does teach a channel to transmit

from a host to a device.  But the control of the channel is part of the application program (along

with application queues) (Fig. 1, items 20, 40, 30', etc.).  The channel can't be started unless the

application for it is started, for example.

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action.  Accordingly, **THIS ACTION IS MADE FINAL**.  See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action.  In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kenneth Tang whose telephone number is (571) 272-3772. The

examiner can normally be reached on 8:30AM - 6:00PM, Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

2/15/05

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